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having simple fistulo-fibrous skeletons; it contains one genus, *Verongia*. The fifth suborder contains sponges which have compound fistulo-fibrous skeletons, and is represented by the genus *Auleskia*. The sixth suborder consists of sponges having regular semi-arenaceous skeletons, and is represented by the genus *Stematumenia*. The seventh suborder has irregular and entirely arenaceous skeletons; it is represented by the genus *Dysidea*. The whole of these genera (those previously established as well as the new ones proposed by the author) have been characterized in accordance with their anatomical structures.

The author concludes his paper with a dissertation on the discrimination of species, and a general review of those portions of the organization that may be applied with advantage to their scientific description. The principal sources for this purpose being—1st. The spicula. 2nd. The oscula. 3rd. The pores. 4th. The dermal membrane. 5th. The skeleton. 6th. The interstitial membranes. 7th. The intermarginal cavities. 8th. The interstitial canals and cavities. 9th. The cloacal cavities. 10th. The sarcode; and 11th. The ovaria and gemmules. And, finally, directions for the examination and preservation are given, with a few examples of the mode of specific description proposed by the author.

VI. "On the Spectrum of Carbon." By JOHN ATTFIELD, Esq., F.C.S., Demonstrator of Chemistry at St. Bartholomew's Hospital. Communicated by Dr. FRANKLAND. Received June 19, 1862.

(Abstract.)

The author has prismatically examined various flames containing carbon. He finds that certain rays of light are common to ignited oxycarbons, hydrocarbons, nitrocarbons, and sulphocarbons, and concludes that these common rays are those emanating from ignited carbon vapour. By special manipulation he obtains the carbon spectrum with olefiant gas, cyanogen, carbonic oxide, and bisulphide of carbon. Observed by the naked eye, the prevailing colour of ignited carbon is light blue.